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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,500	11/24/2000	Ron Dembo	11483-80	2505

1059 7590 08/18/2004

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EXAMINER	
AKERS, GEOFFREY R	
ART UNIT	**PAPER NUMBER**
3625	

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 09/718500	Applicant(s) Porto
	Examiner Akers, G	Art Unit 3625

MW

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑ Responsive to communication(s) filed on ______.

2a) ☐ This action is **FINAL**. 2b) ☑ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☑ Claim(s) 32-33, 36-42, 44-45 is/are pending in the application.

4a) Of the above, claim(s) ______ is/are withdrawn from consideration.

5) ☐ Claim(s) ______ is/are allowed.

6) ☑ Claim(s) 32-33, 36-42, 44-45 is/are rejected.

7) ☐ Claim(s) ______ is/are objected to.

8) ☐ Claims ______ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on ______ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on ______ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ______.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). ______
4) ☐ Interview Summary (PTO-413) Paper No(s). ______
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Request for Continued Examination

1. This action is issued in response to applicant's Request for Continued Examination filed 4/7/04.

2. Independent claims 32,39-41 were amended. Claims 34,35,43 were cancelled.

3. Claims 32-33,36-42, 44-45 as amended, are pending.

Claim Rejections - 35 USC § 112

4. Claims 32-33,36-42,44-45 are rejected under 35 USC 112 (1st paragraph) under the enablement requirement for failing to define how to use the invention. In particular, the claims do not address the mathematical methods to be utilized to solve and implement the apparently intractable equations. Additionally, the independent claims should define how the future scenarios probabilities are determined, how the mark to future values for each portfolio value is computed, the financial instruments considered, determination of the benchmark values, and the parametric bounds for the risk aversion level.

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Claim Rejections - 35 USC § 103

5. Claims 32-33,36-42,44-45 are rejected under 35 USC 103(a) as unpatentable over Young(US Pat. No: 6,393,409) in view of Baker(US Pat. No: 6,336,103) and further in view of Pang(US Pat. No: 6,546,375).

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6. As per claims 32,39-41 Young teaches a method for optimizing portfolios for multiple portfolios(Abstract)(Figs 1-4)(col 2 line 41-col 3 line 25) as well as

utilizing a public network(Fig 1/130)(col 3 lines 64-66) and a benchmark pricing module(Fig 1/160)(col 5 lines 25-33) and an optimization engine(Fig 1/190) and running an optimization(Fig 2/230) until a final one(Fig 3/320) is obtained and an execution is performed(Fig 3/330) as an optimization method(Fig 4).Young further teaches losses(col 2 lines 32-36) as well as gains and loss calculations(col 5 lines 49-58). In addition to that taught by Young, Baker teaches constructing an efficient frontier that defines at least one efficient portfolio from a plurality of portfolios(Fig 1A/22/23/24) and where one performs simulation in which a plurality of mark-to-future values for each respective portfolio is computed wherein the simulation is performed on a plurality of instruments(Fig 1A/29/30) and a time horizon wherein each of said future scenarios is associated with a probability of future occurrence(Fig 1B/22). Baker teaches a method for correlation of asset returns to future financial liabilities(Abstract)(Figs 1-6)(col 1 line 5-col 3 line 21) including securities to be employed, target returns, portfolio weights(Fig 1A/21) as well as calculating the covariances and averages(Fig 1A/22) and calculating a spanning covariance array(Fig 1A/24) to obtain an average return for each security(Fig 1A/25) and utilizing security weights(Fig 1A/26) and solving for optimum by at least linear programming and finding a (quadratic programming) solution(Fig 1A/28) and calculating the covariance of the portfolio including portfolio returns in a simulation period(Fig 1A/29) and developing sorted buys and sells and sector weights(Fig 1A/30).Baker further teaches generating a return for the weighted portfolio of assets(Fig 1B/37) and iterates on the improvement in covariance by selected allowable changes in

asset weights until convergence is attained(Fig 1B/40).In addition to that taught by Baker,Pang teaches risk evaluation through the pricing of options(call and puts)(Abstract)(Figs 1-16)(col 3 line 60-col 4 line 49.). Pang also teaches through pricing of options, payoffs of calls and payoffs of puts(determined through pricing) may then be matched to a portfolios' unrealized gains and losses. Pang further teaches a graphical output from the main user interface of the software(Figs 1-16) for option volatilities. Pang teaches then calculating a call value and a put value for each respective portfolio wherein the call and put values are the expected values of the unrealized losses and unrealized gains of the portfolios(Abstract)(Figs 1-16).Pang teaches pricing(col 4 lines 16-34) of options(Abstract) which constitutes a utility function. It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

7.As per claim 33 Young teaches the method of claim 32 wherein said simulation is also performed on one of the benchmark instrument and a benchmark portfolio in said performing substep(Fig 1/160). In addition to that taught by Young, Baker

teaches wherein said first subset of unrealized gains and said second subset of unrealized losses are calculated relative to mark-to-future values computed for said one of a benchmark instrument and a benchmark portfolio under the plurality of future scenarios(Abstract). Baker teaches constructing an efficient frontier that defines at least one efficient portfolio from a plurality of portfolios(Fig 1A/22/23/24) and where one performs simulation in which a plurality of mark-to-future values for each respective portfolio is computed wherein the simulation is performed on a plurality of instruments(Fig 1A/29/30) and a time horizon wherein each of said future scenarios is associated with a probability of future occurrence(Fig 1B/22). It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

8. As per claim 36 Young teaches according to claim 32. Young does not specifically teach a utility function where the expected utility is a linear combination of the call value and put value. Peng teaches calculating the call value and the put value(Abstract)(col 4 lines 16-34)(Figs 1-16). It would have been obvious to one skilled in the art at the time of the invention to combine

Young in view of Baker and further in view of Pang and to linearly combine the put and call values taught in Peng to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

9. As per claim 37 Young teaches the method of claim 32. Young teaches portfolio having a security having payoffs and one with unrealized losses(Abstract)(col 5 line 49-col 6 line 53). In addition to that taught by Young, Peng teaches the utility function through option pricing of puts and calls(Abstract)(Figs 1-16) which forms the basis for investor decisions. It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

10. As per claim 38 Young teaches according to claim 37.Young teaches gains and losses(Fig 1/160)(col 5 lines 49-61). It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

11. As per claim 42 Young teaches the method according to claim 41 wherein the simulation is performed on one of a benchmark instrument and a benchmark portfolio in the performing step(Fig 1/160)(col 5 lines 25-33). Young further teaches a set of unrealized gains and unrealized losses(col 5 lines 49-58). In addition to that taught by Young, Baker teaches calculating relative to mark to future values computer for said one of a benchmark instrument and a benchmark portfolio under said plurality of future scenarios(Fig 1A)(Fig 1B)(col 1 line 5-col 3 line 21). It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated

by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

12. As per claim 44 Young teaches the method of claim 41. Young does not specifically teach pricing of options as calls and puts. Peng teaches this(Abstract)(col 4 lines 16-34) which permits the derivation of elements (i-v.) as claimed by utilizing linear combinations of priced calls and puts. It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

13. As per claim 45 Young teaches the method of claim 41. Young further teaches a method for optimizing portfolios for multiple portfolios(Abstract)(Figs 1-4)(col 2 line 41-col 3 line 25) as well as utilizing a public network(Fig 1/130)(col 3 lines 64-66) and a benchmark pricing module(Fig 1/160)(col 5 lines 25-33) and an optimization engine(Fig 1/190) and running an optimization(Fig 2/230) until a final one(Fig 3/320) is obtained and an execution is performed(Fig 3/330) as an

optimization method(Fig 4).Young further teaches losses(col 2 lines 32-36) as well as gains and loss calculations(col 5 lines 49-58). In addition to that taught by Young, Baker teaches constructing an efficient frontier that defines at least one efficient portfolio from a plurality of portfolios(Fig 1A/22/23/24) and where one performs simulation in which a plurality of mark-to-future values for each respective portfolio is computed wherein the simulation is performed on a plurality of instruments(Fig 1A/29/30) and a time horizon wherein each of said future scenarios is associated with a probability of future occurrence(Fig 1B/22). Baker teaches a method for correlation of asset returns to future financial liabilities(Abstract)(Figs 1-6)(col 1 line 5-col 3 line 21) including securities to be employed, target returns, portfolio weights(Fig 1A/21) as well as calculating the covariances and averages(Fig 1A/22) and calculating a spanning covariance array(Fig 1A/24) to obtain an average return for each security(Fig 1A/25) and utilizing security weights(Fig 1A/26) and solving for optimum by at least linear programming and finding a (quadratic programming) solution(Fig 1A/28) and calculating the covariance of the portfolio including portfolio returns in a simulation period(Fig 1A/29) and developing sorted buys and sells and sector weights(Fig 1A/30).Baker further teaches generating a return for the weighted portfolio of assets(Fig 1B/37) and iterates on the improvement in covariance by selected allowable changes in asset weights until convergence is attained(Fig 1B/40).In addition to that taught by Baker,Pang teaches risk evaluation through the pricing of options(call and puts)(Abstract)(Figs 1-16)(col 3 line 60-col 4 line 49.). Pang also teaches through pricing of options, payoffs of calls and payoffs of

puts(determined through pricing) may then be matched to a portfolios' unrealized gains and losses. Pang further teaches a graphical output from the main user interface of the software(Figs 1-16) for option volatilities. Pang teaches then calculating a call value and a put value for each respective portfolio wherein the call and put values are the expected values of the unrealized losses and unrealized gains of the portfolios(Abstract)(Figs 1-16).Pang teaches pricing(col 4 lines 16-34) of options(Abstract) which constitutes a utility function. It would have been obvious to one skilled in the art at the time of the invention to combine Young in view of Baker and further in view of Pang to iterate and repeat the calculations and to teach applicant's disclosure.The motivation to combine Young in view of Baker is to teach a method of analyzing a large number of potential assets to develop the optimum portfolio of assets to track a financial index as enunciated by Baker(col 3 lines 1-4).Furthermore the motivation to combine Young in view of Baker and further in view of Pang is to teach a method for determining the optimum portfolio of assets from a plurality of assets utilizing correction option pricing derived from implied volatilities as enunciated by Pang(col 2 lines 38-63).

Response to Arguments

14. Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

Conclusion

15. **THIS ACTION IS MADE NON-FINAL.**

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16. Any questions concerning this communication should be addressed to the primary examiner of record, Dr. Geoffrey Akers, P.E., who can be reached between 6:30 AM and 5:00 PM Monday through Friday at 703-306-5844. If attempts to contact the primary examiner are unsuccessful, the primary examiner's superior, Mr. Vincent Millin, SPE, may be telephoned at (703)-308-1065.

The fax number for Formal or Official faxes and Draft or Informal faxes to Technology Center 3600 or this Art Unit is (703)-308-3687. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)-308-1113.

August 8,2004

DR. GEOFFREY R. AKERS, P.E.
PRIMARY EXAMINER